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WACHSMAN, H

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/14/964

Applicant(s)

Marino et al.

Examiner

HAL WACHSMAN

Group Art Unit

2857

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- ☒ Responsive to communication(s) filed on 8-28-98
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-71 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☒ Claim(s) 52-71 is/are allowed.
- ☒ Claim(s) 1-51 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on 8-28-98 is/are objected to by the Examiner.
- ☒ The specification is objected to by the Examiner.
- ☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

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1. The drawings are objected to by the Draftsperson's for the reasons stated on the PTO-948 form. In addition, the Examiner objects to Figure 1 because Figure 1 was known in the prior art (see page 2 of specification) and consequently needs to be labeled as "PRIOR ART". Appropriate correction is required.

***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

the Declaration provides for each inventor a residence address and it is not clear as to whether or not this address is both their residence and post office address or if they have a different post office address that was not cited on the declaration.

3. Page 8, line 1, of the specification cites U.S. Patent No. 5,068,616 however the title given here is incorrect. The correct title of this patent is "Monitoring Process and Device of a Quasi-Closed Electromagnetic Shield." Page 13 cites "DESCRIPTION OF THE DRAWINGS" however this should be "BRIEF DESCRIPTION OF THE DRAWINGS". Page 20, line 3, cites "a fiber optic receiver.." in which it appears that "a" should be capitalized. Appropriate correction is required.

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

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The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains legal phraseology (i.e. reads like a claim "...comprising the steps of.."). In addition, the "Z:..." at the lower left hand corner should be deleted. Correction is required. See MPEP § 608.01(b).

5. Page 29, lines 11-13 and page 31, lines 6-11, cite a total of 3 prior art references which the Applicant is respectfully requested to submit a copy of each for further consideration by the Examiner.

6. Claims 1-71 are objected to under 37 C.F.R. 1.75(a) for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claim 1, lines 3-4, cite "rich frequency content" which is vague as to exactly what constitutes "rich". Claim 1, line 3, cites "the system" which should be "the physical system". Claim 1, line 4, cites "over a wide band" however is this the same wide band that exists in the input signal? The last 2 lines of claim 1 cite "the excitation signal bandwidth" which lacks clear antecedent basis. Claims 2-6, each cite "said input signal", however the actual antecedent basis is "low-power, wide band input signal". Claims 8-10, each cite "said non-parametric technique" which lacks antecedent basis.

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Claims 12-16, each cite "said parametric technique" which lacks antecedent basis. Claim 17, line 3, cites "each distributed location" which should be "each spatially distributed location". Claim 17, step c) cites "said network" which should be "said telemetry network". Claim 17, step d), cites "simultaneously receiving signals in said data recorders" but receiving signals from what ? In addition, the antecedent basis for data recorders is actually "data recorders/processors". This same step cites "each said location" which should be "each said spatially distributed location". Claim 17, step e), cites "recorded signals" which lacks clear antecedent basis. This same step cites "said network" which should be "said telemetry network". Claim 18 cites "single recorder/processor" which should be "single data recorder/processor". This same type of problem also occurs in claims 19 and 20. Claims 21-31, 34 and 40-45, cite "the said" which is both confusing and redundant. Claim 26, cites "hard wire (conducting cable) links" however what is cited in parentheses following "hard wire" adds ambiguity to the claim with respect as to exactly what type of link is being referred to here. This same type of problem also occurs in claims 27 and 28. Claim 30 cites "said synchronization signal" which should be "said frequency synchronization signal". This same type of problem also occurs in claims 34 and 35. Claim 30 cites "the data stream" which lacks antecedent basis. This same type of problem also occurs in claim 34. Claim 36 cites "the received signal" however the antecedent basis is plural. This same type of problem also occurs in claims 37 and 38. Claim 37 cites "data recorders/processors" however there is antecedent basis for this. Consequently, "the" or "said" is needed before "data recorders/processors". This same type of problem is also found in claim 38. Claim 39 cites "said

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network” which should be “said telemetry network”. Claim 40 cites “the said waveform synthesizer” however the antecedent basis is “one or more waveform synthesizers”. Claim 41 cites “the said modulated signal” which lacks antecedent basis. Claim 45 cites “the desired center frequency” which lacks clear antecedent basis.

Claim 46, step a), cites “each distributed location” which lacks antecedent basis. Claim 46, step c), cites “said network” which should be “said telemetry network”. Claim 46, step d), cites “said data recorders” however the actual antecedent basis is “data recorders/processors”. This same step cites “simultaneously receiving signals” but receiving signals from what ? In addition, step d), cites “each said location” which should be “each said distributed location”. Claim 46, step e), cites “recorded signals” which lacks clear antecedent basis. This same step cites “said network” which should be “said telemetry network”. Claim 46, step f), cites “said signals” but which signals exactly are being referred to here ? Also in this same step, “the system” should be “the physically distributed system”. The preamble of claim 46 cites using “a low-power/wideband (LPWB) test technique” but then the body of the claim makes no reference to such a technique, thus the claim appears to be incomplete. Claim 47 cites “the system under test” which lacks clear antecedent basis. Claim 48 cites “the excitation signal” which lacks antecedent basis. Claim 49 cites “The method,,,for estimating electromagnetic transfer functions” however there is some confusion here as to exactly what is being further limited in claim 46 and what step is performing this estimation ? This same type of problem also occurs in claims 50 and 51.

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Claim 52, part a), cites “rich frequency content” which is vague as to exactly what constitutes “rich”. The end of this step cites “over wide band” however is this the same wide band of the input signal? Claim 52, part b), also cites “said input signal” which should be “said low-power, wide band input signal”. In part d), it appears that the word “of” is missing between “each” and “said”. Claim 52, part f), cites “said network” which should be “said network arrangement”. Claim 52, part g), line 2, cites “said input signal” which should be “said low-power, wide band input signal”. Claim 52, part g), line 2, cites “the system” which should be “the physical system”. Claim 52, part g), lines 2-3, cite “said network” which should be “said network arrangement”. Claim 52, part g), line 3, cites “said first data recorder” however the antecedent basis is “first data recorder/processor”. This same line cites “said input signal” which should be “said low-power, wide band input signal”. Claim 52, part g), line 4, cites “third data recorders” which should be “third data recorders/processors”. This same line cites “the signals received from the system” which lacks clear antecedent basis. Lines 4-5 of part g) of this claim again cite “said input signal” which should be “said low-power, wide band input signal”. Line 5 of this same part cites “third recorder/processors” which should be “third data recorders/processors”. Claim 52, part g), lines 5-6, cite “the signals received therein”, which lacks clear antecedent basis. Line 6 of this same part cites “said code” which lacks antecedent basis. This same line cites “said network” which should be “said network arrangement”. The last line of claim 52 cites “said computer” which should be “said acquisition control computer”. This same line cites “for later processing to

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a transfer function” which is confusing as to what exactly is occurring here. For example, is the computer deriving the transfer function ?

Claim 53 cites “0-999 MHz center frequency” which is confusing as to exactly how such a wide band width can constitute a single center frequency. The preambles of claims 54-60 cite “The method...” which is incorrect as all the dependent claims depend from an apparatus claim. Claim 54 cites “the synthesized waveform” which lacks clear antecedent basis. This same type of problem also occurs in claims 55-59. Claim 56, line 1, cites “is a amplitude” which should be “is an amplitude”. In claim 58, “CW” needs to be defined. Claim 60 cites “the modulated signal” which lacks antecedent basis. In this same claim “the center frequency of interest” lacks clear antecedent basis. Claim 62 cites “said data recorder/processors uses a two-step down-conversion techniques” which appears should be “said data recorders/processors use a two-step down-conversion technique”. In this same claim “the modulated signal” lacks clear antecedent basis. This same type of problem occurs in claim 63. Claim 63 cites “said data recorder/processors uses” which appears should be “said data recorders/processors use”. Claim 64 cites “capable of running..” which implies the computer may or may not be able to run the described software. With respect to the citation of “National Instruments LabVIEW software” it is noted that the claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. (See Ex parte Simpson, 218 USPQ 1020 (Bd. App. 1982)). This same type of problem also occurs in claim 66. In claim 65, with respect to “GPIB” it is noted that industry standards are based upon organizations that implement the standards meeting



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regularly and having the authority to modify standards. Consequently, any connection a claim may have to these standards (i.e. GPIB) may have varying scope over time resulting in an indefinite claim. This same type of problem also occurs in claim 68. Claim 67 cites "said telemetry network" which lacks clear antecedent basis. Claim 68 cites "the digital optics telemetry network" which lacks clear antecedent basis. This same claim cites "the said computer" which is both redundant and confusing and the actual antecedent basis here is "acquisition control computer". Claim 69 cites "said frequency synchronization signal generator" which lacks clear antecedent basis. Claim 69 line 2 cites "the interface module" which lacks antecedent basis. The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above. Appropriate correction is required.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 29 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 29 and 35 are Markush Group claims (See MPEP 2173.05(h)) that do not possess at least one property in common which is mainly responsible for their function in the claimed relationship in which it is clear from their very nature or from the prior art that all of them

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possess this property. The language at the end of each of these claims "and any combination thereof" results in a list of potential alternatives that can vary and ambiguity arises therefore in the alternative expressions of these claims.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admissions of the prior art in view of Krayski et al. (5,471,146).

As per claim 1, the Applicant's Admissions of the prior art (page 17 lines 18-20, page 29 all, page 30 all, page 31 lines 1-11 of the specification) discloses step b). The Applicant's

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Admissions of the prior art (page 5 lines 15-22, page 6 lines 1-17 of the specification and figure 2) discloses step a) with the exception of clearly disclosing the low-power aspect of the wide band input signal. However, Krayeski et al. (Col. 1 lines 14-16, col. 3 lines 43-47) teaches this excepted feature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Krayeski et al. to the Applicant's Admissions of the prior art as specified above because as taught by Krayeski et al. (Col. 1 lines 14-16) new low power personal communications products such as the Motorola CT-2 System were already known in the art and in common use.

As per claim 2, the Applicant's Admissions of the prior art (page 3 lines 14-16, page 5 line 22, page 6 lines 1, 8 of the specification) discloses the feature of this claim.

As per claim 3, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that frequency modulation was well known in the art and is a modulation technique in which the carrier frequency is shifted by an amount proportional to the value of the modulating signal.

As per claim 4, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that amplitude modulation was well known in the art and is a method of adding information to an electronic signal in which the signal is varied by its height to impose information on it.

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As per claim 5, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that phase modulation was well known in the art and that in this modulation the phase of the sine wave is changed as the information to be carried is changed.

As per claim 6, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that there are various electromagnetic radiation producing electrical/electronic devices in everyday use in our environment which can create an ambient signal.

As per claim 7, the Applicant's Admissions of the prior art (page 29 all, page 30 lines 1-19 of the specification) discloses the feature of this claim.

As per claim 8, the Applicant's Admissions of the prior art (page 29 lines 3-5 of the specification) discloses the features of this claim.

As per claim 9, the Applicant's Admissions of the prior art (page 29 lines 3-5 of the specification) discloses the features of this claim.

As per claim 10, the Applicant's Admissions of the prior art (page 29 lines 3-5 of the specification) discloses the features of this claim.

As per claim 11, the Applicant's Admissions of the prior art (page 29 lines 1, 2, 5-8 page 31 lines 2-4, 6-11 of the specification) discloses the feature of this claim.

As per claim 12, the Applicant's Admissions of the prior art (page 31 lines 2-4, 9-11 of the specification) discloses the feature of this claim.

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As per claim 13, the Applicant's Admissions of the prior art (page 31 lines 2-4, 6-8 of the specification) discloses the feature of this claim.

As per claim 14, the Applicant's Admissions of the prior art (page 31 lines 2-4, 6-8 of the specification) discloses the feature of this claim.

As per claim 15, the Applicant's Admissions of the prior art (page 31 lines 2-4, 6-8 of the specification) discloses the feature of this claim.

As per claim 16, the Applicant's Admissions of the prior art (page 31 lines 2-4, 6-8 of the specification) discloses the feature of this claim.

11. Claims 17-38 and 46-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. (4,663,744) in view of the Applicant's Admissions of the prior art.

As per claim 17, Russell et al. (Abstract, col. 5 lines 41-50) disclose step a). Russell et al. (Abstract, col. 3 lines 27-52) disclose step c. Russell et al. (Abstract, figures 2, 3) disclose step b) with the exception that Russell et al. disclose a command center and does not explicitly disclose that the command center is an acquisition control computer. Russell et al. (Abstract) disclose step e) with the exception that Russell et al. disclose a command center and does not explicitly disclose that the command center is an acquisition control computer. In addition, Russell et al. does not clearly disclose step d). However, the Applicant's Admissions of the prior art (page 5 lines 15-22, page 6 lines 1-3 of the specification, figure 2) teaches step d) and the Applicant's Admissions of the prior art (page 6 lines 8-14 of the specification, figure 2)

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teaches the acquisition control computer. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because the use of a computer would facilitate the rapid analysis of all of the data from all of the data recorders/processors.

As per claim 18, the Applicant's Admissions of the prior art (page 2 lines 14-16 of the specification) teaches that transfer function determination requires one signal (for exciting the system under test) and two measurements (the excitation and response). From this teaching, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above and have a single recorder/processor in the instances where only the one signal (for exciting the system under test) needs to be measured.

As per claim 19, the Applicant's Admissions of the prior art (page 2 lines 14-16, 19, 20) teaches the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because as taught by the Applicant's Admissions of the prior art (page 2 lines 14-16 of the specification) transfer function determination requires one signal (for exciting the system under test) and two measurements (the excitation and response). Thus, in the instances where the two measurements are needed two data recorders/processors can be used.

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As per claim 20, Russell et al. (Abstract) disclose the feature of this claim.

As per claim 21, Russell et al. (Abstract, col. 2 lines 43-46, col. 4 lines 12-23) disclose the feature of this claim.

As per claim 22, Russell et al. (Col. 1 lines 17-22, 54-57) disclose the feature of this claim.

As per claim 23, the Applicant's Admissions of the prior art (page 6 lines 12-14 of the specification) teaches the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because fiber optics were well known in the art as a technology which uses light for the transport of information and that modulating light on thin strands of glass has the benefit of low power consumption.

As per claim 24, Russell et al. (Abstract, col. 6 lines 3-18) disclose the features of this claim.

As per claim 25, the Applicant's Admissions of the prior art (page 6 lines 12-14 of the specification) teaches the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because fiber optics were well known in the art as a technology which uses light for the transport

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of information and that modulating light on thin strands of glass has the benefit of low power consumption.

As per claim 26, Russell et al. (Col. 1 lines 48-51) disclose the features of this claim.

As per claim 27, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that daisy chain was simply a method of connecting devices in a series. The computer's signals are passed through the chain from one device to the next.

As per claim 28, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that star was a topology in which all phones or workstations are wired directly to a central service unit or workstation that establishes, maintains and breaks connections between the workstations providing the advantage in that it is easy to isolate a problem node.

As per claim 29, Russell et al. (Abstract, col. 1 lines 17-20, 48-51, 54-57) disclose at least one of the items from the group.

As per claim 30, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the integration technique described in the claim would provide better economy of transmission and ensure that the message portion of the data stream arrives at the correct desired time.

As per claim 31, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that pulse width modulation was well known in the art and



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was a common method of modulating a signal, in which an analog input signal's DC level controls the pulse width of the digital output pulses.

As per claim 32, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that frequency division multiplexing was well known in the art and was a technique in which the available transmission bandwidth of a circuit is divided by frequency into narrower bands, each used for a separate voice or data transmission channel.

As per claim 33, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that time division multiplexing was well known in the art as a technique for transmitting a number of separate data, voice and/or video signals simultaneously over one communications medium by quickly interleaving a piece of each signal one after another.

As per claim 34, Russell et al. (Abstract, col. 3 lines 15-65) disclose the features of this claim.

As per claim 35, it would have been obvious to a person of ordinary skill in the art that the techniques described here were well known in the art as already shown above in claims 31-33.

As per claim 36, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that down converting was simply performing frequency translation in such a manner that the output frequencies are lower in the spectrum than the input frequencies.

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As per claim 37, Russell et al. (Abstract, col. 2 lines 43-46, col. 4 lines 9-17) disclose the feature of this claim.

As per claim 38, Russell et al. (Col. 1 lines 17-22, 54-57) disclose the feature of this claim.

As per claim 46, Russell et al. (Abstract, col. 5 lines 41-50) disclose step a). Russell et al. (Abstract, col. 3 lines 27-52) disclose step c. Russell et al. (Abstract, figures 2, 3) disclose step b) with the exception that Russell et al. disclose a command center and does not explicitly disclose that the command center is an acquisition control computer. Russell et al. (Abstract) disclose step e) with the exception that Russell et al. disclose a command center and does not explicitly disclose that the command center is an acquisition control computer. In addition, Russell et al. does not clearly disclose steps d and f. However, the Applicant's Admissions of the prior art (page 5 lines 15-22, page 6 lines 1-3 of the specification, figure 2) teaches step d) and the Applicant's Admissions of the prior art (page 6 lines 8-14 of the specification, figure 2) teaches the acquisition control computer. In addition, the Applicant's Admissions of the prior art (page 17 lines 18-20, page 29 all, page 30 all, page 31 lines 1-11) teaches step f. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because the use of a computer would facilitate the rapid analysis of all of the data from all of the data recorders/processors.

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As per claim 47, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that if there were only one data recorder/processor then the system under test would not be physically distributed.

As per claim 48, the Applicant's Admissions of the prior art (page 1 lines 9-12, page 2 lines 3-13 of the specification) teaches the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because there are various electromagnetic radiation producing electrical/electronic devices in everyday use in our environment which can create an ambient excitation signal.

As per claims 49 and 50, the Applicant's Admissions of the prior art (page 2 lines 11-21 of the specification) teaches the features of each of these claims. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of the Applicant's Admissions of the prior art to the invention of Russell et al. as specified above because there are various electromagnetic radiation producing electrical/electronic devices in everyday use in our environment which can create an ambient excitation signal as well as acoustically affected environments for which the transfer function may be desired.

As per claim 51, Russell et al. (Abstract) discloses seismic systems for which a transfer function if desired could be computed.

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12. Claims 39-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. (4,663,744) in view of the Applicant's Admissions of the prior art as applied to claim 17 above, and further in view of Henry, Jr. (5,991,622).

As per claim 39, Henry, Jr. (Abstract, col. 2 lines 57-67, col. 3 lines 1-5) teaches the features of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Henry, Jr. to the invention of Russell et al. and the Applicant's Admissions of the prior art as specified above because the synthesizer provides a means for generating the excitation signal as desired.

As per claim 40, Henry, Jr. (Abstract, col. 7 lines 35-57) teaches the features of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Henry, Jr. to the invention of Russell et al. and the Applicant's Admissions of the prior art as specified above because the synthesizer provides a means for generating the excitation signal as desired.

As per claim 41, Henry, Jr. (Figures 5, 6, 9) teaches the feature of this claim. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Henry, Jr. to the invention of Russell et al. and the Applicant's Admissions of the prior art as specified above because it would provide for automatic adjustment of the modulated signal without operator invention.

As per claim 42, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that frequency modulation was well known in the art and is a

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modulation technique in which the carrier frequency is shifted by an amount proportional to the value of the modulating signal.

As per claim 43, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that amplitude modulation was well known in the art and is a method of adding information to an electronic signal in which the signal is varied by its height to impose information on it.

As per claim 44, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that phase modulation was well known in the art and that in this modulation the phase of the sine wave is changed as the information to be carried is changed.

As per claim 45, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that up-conversion was well known in the art and typically entailed using an up-converter which was a device for performing frequency translation in such a manner that the output frequencies are higher than the input frequencies.

13. Claims 52-71 are allowed subject to the appropriate correction of the 37 C.F.R. 1.75(a) objections noted above.

14. The following references are cited as being art of general interest : Wardle which discloses a group delay estimate system using least square fit to phase response ramp, O'Byrne which discloses the measurement of wideband RF transmission statistics and Adachi which discloses the use of least squares in the calculation of a transfer function.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal Wachsman whose telephone number is (703) 305-9788. The examiner can normally be reached on Monday to Thursday from 7:00 A.M. to 4:30 P.M. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff, can be reached on (703) 308-1677.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-7382 (for informal or draft communications, please label "PROPOSED"  
or "DRAFT")

Hand-delivered responses should be brought to Crystal Plaza IV, 2201 South Clark Place,  
Arlington, VA., Fourth Floor (Receptionist).

January 3, 2000

*Hal Wachsman*  
**HAL WACHSMAN**  
**PRIMARY EXAMINER**  
*AV2857*